

REMARKS

This application has been carefully reviewed in light of the Final Office Action dated October 2, 2001. Claims 1-7 remain pending in this application. Claim 1 is the independent claim. Favorable reconsideration is respectfully requested.

Applicants note with appreciation the indication that Claim 2 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims. Applicants respectfully refrain from so amending Claim 2 at this time because Applicants believe its respective base claim is allowable for the reasons given below.

On the merits, the Office Action rejected Claims 1, 3-5, and 7-10 under 35 USC § 102(e) as being anticipated by Derkits, Jr. et al. (U.S. Patent No. 5,861,665; hereinafter "Derkits"). The Office Action also rejected claims 1, 4, 5, and 6 under 35 U.S.C. § 102(e) as being anticipated by Wolters et al. (EP 0513894B1; hereinafter "Wolters"). Applicants respectfully submit that the pending application and claims are patentable for at least the following reasons.

Applicants' Claim 1 recites in pertinent part: "[A] semiconductor device... comprising means for preventing pollution of the circuit elements and of the substrate by hydrogen originating from an environment inside a housing enclosing a portion of the semiconductor device, characterized in that said

means are formed by a layer of a material which absorbs hydrogen, referred to as hydrogen getter (10), which forms a pattern which is integrated with the circuit elements and of which an external surface (11) is exposed and in contact with said environment."

Derkits fails to recite or suggest a hydrogen getter integrated with the circuit elements. Rather, Dirks provides "a member, separate from the components, which comprises a first layer of material which forms a hydride when subject to solvated hydrogen" (Col. 1, lines 30-33). The Office Action argues that Derkits discloses layer 33 in Col. 2, lines 55+. However, Derkits' layer 33 is on a substrate bonded to a lid (see, e.g., Col. 2, lines 37-42). Further, Derkits teaches away from Applicants' invention by specifically separating member 31 from the components (see, e.g., Col. 3, lines 27-28). Although Derkits recites "a member, 31,... could be mounted anywhere in the cavity" (col. 2, lines 25-27), it is Applicants' understanding that "in the cavity" (ibid.) means "attached to one of the package inner walls or to the lid" (col. 3, lines 19-20). Consequently, Derkits' device requires more complex formation procedures (i.e., forming a hydrogen getter on the sides or lid of the housing) and lacks the advantage of preventing the neutralization of charges in the metal layers or interfaces thereof either at its surface or within the material itself.

The Office Action argues that Applicant failed to further structurally differentiate the claimed circuit elements and the components of Derkits. Applicants respectfully note that components 12, 13, and 14 of Derkits and member 31 which contains hydrogen getter 33 are separate, as indicated in Fig. 2. Consequently, the rejection of Claim 1 as being unpatentable over Derkits is believed untenable and the invention is believed patentable for at least these reasons.

Wolters also fails to recite or suggest a hydrogen getter integrated with the circuit elements. Walters shows hydrogen-absorbing coating layer 30 sandwiched between insulating layer 40 and electrode 13. However, this configuration may cause the capacitor to short-circuit. To prevent such short-circuiting, Wolters includes "an insulating auxiliary layer... between the hydrogen-absorbing layer and the surface of the semiconductor body" (col. 4, lines 37-40). This auxiliary layer can be seen in Fig. 5 of Wolters where the hydrogen-absorbing coating layer 30 is sandwiched between insulating layers 40 and 50. As stated in Applicants specification on page 2, paragraph 3:

Experiments have shown that the use of a metal layer made of a hydrogen-absorbing metal sandwiched between two insulating layers so as to form a composite film covering the integrated circuits has a detrimental influence on the integrated circuit because this composite film constitutes a strong parasitic capacitance which downgrades the performance levels of all elements of the integrated circuit even at room temperature. Such a layer realized in

accordance with the cited patent application should accordingly be steered clear of altogether.

Consequently, Wolters teaches away from Applicants' claimed invention.

Further, Wolters does not protect against hydrogen poisoning from the protective housing because no part or surface of the hydrogen-absorbing coating layer 30 is exposed. Consequently, Wolters' device lacks the advantage of preventing the neutralization of charges in the metal layers or interfaces thereof either at its surface or within the material itself. The Final Office Action argues that the environment is not defined in such a way that Wolters would not anticipate the invention and that Wolters' layer is exposed to adjacent parts of the circuit elements. Applicants respectfully submit that Page 3, lines 29 et seq. indicate that "hydrogen from the environment is understood to mean the hydrogen which is enclosed together with the integrated circuit device inside a hermetically sealed protective housing." Wolters fails to protect against poisoning from this environment. Consequently, the rejection of Claim 1 as being unpatentable over Wolters is believed untenable and the invention is believed patentable for at least these reasons.

Dependent Claims 2-7 depend from independent Claim 1 discussed above and are believed patentable for at least the

- same reasons. In addition, however, each is also deemed to define an additional aspect of the invention, and should be individually considered on its own merits.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application. Please charge any additional fees which may now or in the future be required in this application, including extension of time fees and fees for claims added upon amendment, but excluding the issue fee unless explicitly requested to do so, and credit any overpayment, to Deposit Account No. 14-1270.

Respectfully submitted,

by



Aaron Waxler

Reg. 48,027

Tel.: 914-333-9608

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